# Emerald Ash Borer Management Plan
# Harrington Beach State Park
**October 2014**

## Background

The Emerald ash borer (EAB, *Agrilus planipennis* Fairmaire) is a beetle that is native to China, Mongolia, North Korea, South Korea, Japan, Taiwan, and the Russian Far East. Emerald ash borer probably arrived in the United States on solid wood packing material carried in cargo ships or airplanes originating in its native Asia. It was first identified in the Detroit, Michigan area in 2002, and, to date, EAB has been confirmed in 24 states and two Canadian provinces.

As of October, 2014, there are 37 counties in Wisconsin quarantined for EAB, including Ozaukee County the home of Harrington Beach State Park. Residents and businesses in quarantined counties are restricted from moving any hardwood firewood, ash nursery stock or ash logs, or timber out of the quarantine area without a government-issued Compliance Agreement.

In North America, EAB has only been found in ash (*Fraxinus* spp) trees and recently in white fringetrees (*Chionanthus virginicus*). Ash trees generally die within five years of being infested. There appears to be very little natural resistance of North American ash species to EAB.

The canopy of infested trees begins to thin above infested portions of the trunk and major branches because the borer larvae destroy the water and nutrient conducting tissues under the bark. Heavily infested trees exhibit canopy die-back usually starting at the top of the tree. One-third to one-half of the branches may die in one year. Most of the canopy will be dead within 2-3 years of when symptoms are first observed. Sometimes ash trees push out sprouts from the trunk after the upper portions of the trees die. Although difficult to see, the adult beetles leave a "D"-shaped exit hole in the bark, roughly 1/8 inch in diameter, when they emerge.

Adult beetles nibble on ash leaves but cause little damage.

The EAB beetle can have a one- or two-year life cycle. Adults begin to emerge early June in southeastern Wisconsin with peak emergence in late June. Females usually begin to lay eggs about 2 weeks after emergence. Eggs hatch in 1-2 weeks, and the tiny larvae bore through the bark and into the cambium which is the area between the bark and wood where nutrient levels are high. The larvae feed under the bark for several months, usually from late June through October. The larvae typically pass through four stages, eventually reaching a size of roughly 1 to 1.25 inches long. Most EAB larvae overwinter in a small chamber in the outer bark or in the outer inch of wood. Pupation occurs in spring and the new generation of adults will emerge in early June, to begin the cycle again.

EAB adults are capable of flying several miles from the tree where they emerge, although most beetles travel less than ¼ mile. Many infestations, however, were started when people moved infested ash nursery trees, logs, or firewood into non-infested areas.

## Key Concerns for Harrington Beach State Park

The main concerns regarding EAB at Harrington Beach State Park are public safety, resource protection, visitor experience, and aesthetics. Harrington Beach State Park offers many recreational opportunities including family, group, and kayak campsites, picnic areas, trails, a mile of Lake Michigan beach, hunting, and various winter activities.

Trees in heavily-used areas including campgrounds and picnic areas are typically under greater stress than forest trees due to soil compaction and bark and limb injuries and therefore may be

more attractive to EAB females for depositing eggs. The loss of mature trees impacts shade, screening, site cooling, and the aesthetic quality of the area. The park campgrounds will be the first area assessed for potential ash hazard trees which are marked and slated for removal. A component of ash tree management is the inclusion of new tree plantings to address shading and screening needs and to improve aesthetics.

## Current Situation

EAB presence was confirmed at Harrington Beach in July 2013, when several adult beetles were caught on a purple detection trap at the group camp area. Larval galleries were found nearby in early 2014. The park use areas including the campground were subsequently evaluated to identify ash that, when affected by EAB, will become hazards to the visiting public.

## Highest Priority Areas for EAB Management at Harrington Beach State Park (see attached map which shows the location of the highest priority areas on the park)

1. Campgrounds
    a. Family
    b. Group
    c. Kayak
2. Day use areas
    a. Quarry Lake
    b. South picnic area
    c. Point picnic area
    d. Scenic picnic area
    e. Ansay Welcome Center and visitor contact station (PEVS) areas
3. Established trails and internal and external road system
4. Forested stands in Special Management and Habitat Management areas (Stands 2, 4, 9, 10, 14).
5. Stand 12 in the Recreation Management and Habitat Management areas

## Lower Priority Areas

Low priority areas are those where there is no ash (such as grasslands), no compelling ecological need to remove ash, or no public hazards posed by dead or dying ash trees.

## Wildlife Concerns

Ash species, especially white ash, can be important sources of habitat and browse for wildlife. The samaras (fruits) are good forage for many other birds and small mammals. White ash's ability to readily form trunk cavities if the top is broken and its large size (24 to 48 inches) at maturity make it highly valuable for primary cavity nesters such as woodpeckers. Once the primary nest excavators have opened up the trunk of the tree, it is excellent habitat for secondary nesters such as wood ducks, owls, nuthatches, and gray squirrels.

## Endangered Resources and State Natural Area Concerns

There are no State Natural Areas designated at Harrington Beach State Park. The NHI review shows 9 species within the sale area and within a 1 mile buffer. Of these, 1 is endangered, 4 are threatened, and 5 are of special concern. Negative impacts to rare species will be avoided by the timing of the harvest (winter only–frozen ground) and lack of suitable habitat at harvest locations.

## Archaeological Feature Concerns

Historical and archaeological sites have been identified at Harrington Beach State Park. Impacts at these sites will be avoided by proper timing of timber harvesting or other management activities.

## Management of EAB

*Monitoring*
Property staff will receive training in EAB symptom identification and will monitor for EAB symptoms and hazard trees at the park.

*Ash Tree Removal*
Depending on tree height and direction of lean, ash trees will be removed within 70-100 feet of exterior and interior park roads and trails. Ash trees will be felled from within 70 feet of the center of individual campsites. Ash trees will be removed from the current kayak campsites. Forested sites within the Habitat Management and Special Management areas (as listed above) will be clear-cut and converted to grasslands or wetlands. Ash trees within 70-100 feet of roads and campsites in Stand 12 will be removed and replaced with ecologically appropriate, native tree species.

A decision to "pre-salvage" the ash before significant mortality sets in was made to minimize exposure of the public to hazard trees.

Potential hazard trees, including non-ash species, will be identified and, using a commercial pulpwood or sawlog timber sale, removed from within the priority areas noted above. If commercial timber sales are not feasible, firewood permits or a concessionaire could be used. Park or other department staff could also be used to fell and process the ash trees.

Any chip collection will be retained on the park, away from the public. Wood that cannot be chipped or removed as marketable timber will be stockpiled for at least two years on site, away from the public. That wood can then be used as firewood for the park. Stumps in mowed areas will be ground down so that they are not a tripping or maintenance hazard.

*Cultural Management*
Tree planting will be needed to replace hazard trees that are removed from use areas. Replacement trees (park stock) will be a diverse mix of ecologically-appropriate species, with a balance of fast-growing and slower species and a variety of tree heights. More quickly growing trees will help replace shade trees sooner while allowing slower growing, longer living species to reach maturity. Proper maintenance after the trees have been planted, such as watering, will be needed to increase the survival of the saplings.

The kayak campsites will be relocated to a new site where ash trees present less of a hazard.

*Pesticides*
Insecticides can be used to protect any identified high value (for example, a large shade tree) trees that have been identified at Quarry Lake and in the picnic areas. Depending on the chemical used, pesticides treatments would need to be applied at one to three year intervals.

Stumps of hazard trees that are felled should be treated with herbicide to prevent re-sprouting.

*Biological Controls*
Several parasitoid, non-native wasp species have been identified and authorized for release by the U.S. Department of Agriculture. The wasps are small, non-stinging insects that are harmless to humans. Harrington Beach State Park has low suitability as a wasp release site due to fragmented ash distribution around the park and recent releases in Port Washington.

*Public Education and Communication*
EAB posters and other information will be posted in the campground bulletin boards. Flyers and information will be handed out in the property office. Notices about hazard tree removal will placed on bulletin boards and in the property office. A public outreach campaign about EAB management within Harrington Beach State Park should be developed and implemented with the Office of Communications.

## Funding

Educational literature is available through the DNR at no charge. The park may be able to purchase any materials for physical controls and labor out of the operations budget. Regional sawyer crews may be used for felling hazard trees. Chipping and tree planting may be accomplished through a variety of labor such as a Department of Corrections crew. Tree planting may also be done by volunteers.

EAB management will be multiple year effort that will likely strain the operations fund of Harrington Beach State Park. Property staff will identify and pursue alternate funding sources, such as the Sustainable Forestry Fund, to augment the property operation budget.

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**Revised by (Date):**
**Revision comments:**

# Harrington Beach State Park Emerald Ash Borer Priority Management Zones